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THE POISONOUS ACTION OF TINCTURE OF ARNICA UPON THE SKIN.[1]

BY JAMES C. WHITE, M. D.

Case I.— A gentleman, sixty-five years of age, in descending the stairs to mount his horse for a ride, slipped and scraped the lower part of his back. A handkerchief dipped in tincture of arnica was immediately applied to the bruised skin of the buttocks and worn in contact with the part during the ride, which was not given up on account of the injury. Before his return a good deal of itching was felt in the back, which caused the parts to be rubbed vigorously. On examination after reaching home, the skin was found to be already greatly congested, and the irritation of the parts increased a great deal during the day and night. On the next day I was called to see him. The skin of the back, nearly to the shoulders, was in a state of active hyperæmia, and already covered with innumerable papules. The inflammatory process extended rapidly downwards nearly to the knees, and forwards upon the abdomen and genitals. In a few days these parts presented all the characteristic appearances of acute eczema in its various stages of progression: general hyperæmia, papules, vesicles, excoriated and exuding surfaces, and crusts. The subjective symptoms were intense itching, stinging, and burning in the parts. Scarcely any clothing could be borne in contact with the skin by day, and sleep was for a few nights almost impossible, but the system generally was only slightly disturbed. The course of the affection need not, however, be given in detail, as it did not vary in any important particulars from that of an ordinary acute eczema of high grade and short duration; the process reaching (under treatment) its height within a week, and rapidly disappearing with the usual retrogressive manifestations.

Case II. — A gentleman, sixty years old, applied to his right arm above the elbow a fomentation of tincture of arnica on two successive days, on account of a so-called rheumatic pain in the limb. The part became generally reddened and swollen in a few days, and ten days after the applications were made he consulted me. The arm from the elbow to the shoulder at that time was considerably swollen, of a vivid redness, and covered over the lower half of this district with a very thick erup-

[1] Read before the Boston Society for Medical Improvement, December 14, 1874.

tion of papules, many of which were already partially converted into vesicles. Great itching and burning were felt in the part, which gradually ceased as the inflammation subsided. The efflorescence under treatment did not progress beyond the vesicular stage, and the skin returned to its normal state in ten or fourteen days subsequently.

Case III. — A gentleman, aged fifty-two years, was thrown from his carriage and sprained his knee. With the consent of his family physician, he dressed the part with fomentations of tincture of arnica and water. After two days' use of these the skin over the knee became so red that the physician advised him not to apply them again. The redness extended down the leg nearly to the ankle, and upon this surface there was developed in a few days a general eruption of papules. A similar process, but of less severity, ensued a day or two later upon the inner surface of the corresponding parts of the other leg, which were more or less in contact with the fomentations. The efflorescence upon the legs did not pass into the vesicular stage generally, but remained at its height for a week, and then very gradually subsided under treatment. Three days after the use of the fomentations, an inflammation of the skin of the face also began, which increased in severity until I saw him, one week after the injury. His whole face was then very much swollen, of a deep red color, and covered with papules and vesicles towards its periphery, whilst upon the central portions there was a very free exudation of serum from many excoriated points, which in parts had already stiffened into crusts. The vesicles and papules on the forehead were arranged in prominent and isolated clusters of two or three individuals in each. The whole had an artificial look, and strongly resembled in appearance a severe case of ivy-poisoning. The subjective symptoms were mainly intense itching with slight burning; and considerable suffering was thereby occasioned for several days. After two days' treatment the amount of free exudation was largely reduced, and no new efflorescence appeared. The swelling and redness were still considerable on the fourteenth day after the beginning of the inflammation, but were rapidly diminishing, and at the end of the month the skin was again in its natural state.

The nature and cause of the affection of the skin in these cases cannot, I think, be misinterpreted. In all of them we have an acute inflammatory process, confined to the upper dermal layers, and manifesting itself, according to the stage reached, by the following appearances: hyperæmia, papules, vesicles, excoriations, crusts, and scales, in regular sequence. The local sensations were intense itching and some degree of burning in the parts affected. There was no constitutional disturbance. In course, character, and sequence of the lesions in their development and retrogression, in the intensity of the subjective and absence of constitutional symptoms, the affection is unmistakably acute eczema. It

may be that cases occur in which the inflammation extends so deeply and reaches so high a degree, as to warrant the title dermatitis, but I have never seen them.[1]

The cause was also plainly manifest. The inflammation followed in all the cases the application of tincture of arnica to the skin as a fomentation. In one of the instances, the first, the epidermis may have been slightly broken; but in the others the skin of the parts was whole and healthy at the time of the applications. The inflammation began to show itself after intervals varying from a few hours to several days, and was confined to the part to which the application was made, or extended from this as a centre. In the last case the disease was developed also upon the other knee and upon the face, but by direct contact, nevertheless, with the exciting cause, for the right knee was in contact with the left during the nights that the fomentations were applied to the latter, and the face was frequently rubbed (a constant habit of the patient) with the hands while applying the fomentation. That the hands were not likewise affected may be accounted for by the greater resistance to absorption offered by the thickened epidermis of the palms.

These three cases will serve, as well as more which might be presented, as typical illustrations of the action of arnica at times upon the skin. The affection, as will be seen, follows a very regular course in the character, distribution, and duration of its lesions, differing widely in some of these respects from the wayward manifestations so peculiar to the action of rhus. Like the latter, arnica must therefore be regarded as an irritant poison when applied to the skin of some persons, but of less intensity and probably of less certainty in its action than rhus. With regard to this latter point, the proportionate frequency of poisoning after its external use, I do not know that we can form any judgment. There can be no doubt that tincture of arnica is very often used in the same way as in the cases above given. It has long enjoyed an exceptionally permanent reputation, and almost miraculous healing powers have been attributed to it. Oesterlen says that "its reputation dates from the times when magicians carried on their hocus-pocus with it; from these it passed into the hands of quacks, and finally to physicians." There is scarcely a symptom of disease which, it was at one time thought in Europe, its internal administration could not successfully meet.

The physiological action of both the root and the flowers of arnica is said to be irritant, large doses producing vomiting and diarrhœa, inflammation of the stomach and bowels, headache, and dizziness. Its properties reside in an acrid resin and volatile oil. Our officinal preparations

[1] Since writing the above I have received the last annual report of Professor Hebra's skin clinic, in which it is stated that an apprentice rubbed his foot with tincture of arnica and produced so severe a dermatitis as to cause destruction of a portion of the tissues.

are a tincture, an alcoholic extract, and a plaster. That tincture of arnica has retained for centuries its great reputation as an application in bruises and sprains, and remains to this day perhaps the most popular remedy for such purposes, it may thank the alcohol associated with it, for this beyond doubt is the only active agent in such applications.

I am informed by one of the largest dealers in drugs in this city that their house sells between two and three thousand pounds of arnica flowers yearly, one half of which he thinks is used in veterinary surgery.

If, then, it is used so extensively, why are not cases of poisoning by it of more common occurrence? I believe that they do occur not infrequently, but that they are not recognized. The appearances which follow its use are no doubt often mistaken for the immediate effect, or the sequelæ, of the injury or other trouble for which it was applied. Even the physician, there can be little doubt, often fails to recognize the artificial nature of the eczema he is called to treat, and to connect it with the prior application of arnica to the skin. The almost universal belief in its harmlessness, too, would prevent in most cases the patient from communicating to the physician the fact of its use before the appearance of the disease. It is not to be wondered at, however, that physicians are so little acquainted with these poisonous properties, when we see how little mention is made of them in medical literature. The works on materia medica that I have at hand give it a more or less feeble commendation, but make no allusion to its injurious action upon the skin. Very few of the works on toxicology place arnica among the poisons, and Van Hasselt,[1] who gives the fullest account of its injurious properties when administered internally, says nothing of its action upon the skin. Neither do I recall any reports in medical journals of cases of such affection. In works on dermatology, even, scarcely any mention is made of the subject. In a long list of substances enumerated as capable of producing eczema, in his chapter on this disease, Hebra includes arnica without special mention; but in his article on erythema nodosum he says:[2] "Some medical men, however, suppose that the tincture of arnica is a perfectly harmless remedy in erythema nodosum, and in similar affections. But I would give a friendly warning to those who advocate its use; unless, indeed, they propose to employ it homœopathically and in infinitesimal doses. In the proportion of a drop of the tincture to a pail of water, this substance may certainly be applied without any risk of doing harm. But I have in practice had abundant occasion to observe that the tincture of arnica, even when much diluted, acts most injuriously upon the skin of some persons. I have frequently seen eczema or dermatitis excited by the assiduous application of lotions containing this drug, in the treatment of slight bruises or sprains." Fox,[3]

[1] Handbuch der Giftlehre.

[2] Sydenham Translation, vol. i. page 291.

[3] Skin Diseases, London, 1873.

in his brief remarks on Medicinal Rashes, says: "Arnica may produce erythema and swelling of the part to which it is applied, or it may excite a real eczema."

It is to warn physicians who may be ignorant of these properties belonging to it, and that through them the public may be more generally informed concerning the dangerous character of one of the most popular and useless among domestic external remedies, that I have thus brought the subject before the profession.

GUM-CUTTING.

BY CHARLES E. BUCKINGHAM, M. D.,
Professor of Obstetrics in Harvard University.

Some months ago among your "Notes and Queries" was a question about cutting gums. A week or two later, a correspondent (E. T. W.) gave a very decided answer as to the propriety and usefulness of the operation. For some time before the question was asked in the Journal, I had been making the same inquiry of physicians whom I met, and I was rather surprised to find among the younger practitioners so many who had never used the gum lancet, and who could not imagine the case in which it would be necessary.

The let-alone system of treatment is good; in very many cases it is the best; but it is not always the best. The relief afforded by a free incision through the gum in some instances in which there was acute pain has, under my observation, been more marked than that afforded by any other operation that I ever saw. The tooth, it is true, in the very great majority of cases finds its way through without difficulty to the child. The first indication to the mother whose child has always been nursed, and never fed, is often the feeling of an incisor against her nipple. In some cases where a proper plan of feeding has been followed, there is as little indication of trouble during dentition. Occasionally when the child is nursed, more frequently when it is fed, and often when it is improperly fed, the little one apparently suffers pain in the mouth, in the head, and in the bowels, whenever a new tooth is about to make its appearance. In another class of badly-fed patients there is always loss of appetite at this time, with sleepless nights, nausea, and vomiting. In others, cough comes on which only exists then, and for which auscultation gives no explanation; and the little patient's sufferings are augmented by "hive syrup," squills, and other nauseants which give no relief, and by "Mrs. Winslow's soothing syrup," and other narcotic drugs, which stupefy but do not cure. There is still an-

other class consisting mainly of improperly-fed children, who have convulsions, sometimes slight it is true, and sometimes fatal. There is no disturbance of the nervous system so far as I know which may not exist in the teething child, and none which may not be aggravated by improper food. Indeed, the time of dentition is the time when by far the greatest number of deaths take place among children, whether the immediate cause be in the head, the chest, or the abdomen.

There are two common notions among maiden ladies, who are often the advisers of mothers younger than themselves; these notions are the source of very great suffering to babies, and occasionally the cause of death. They are, that cutting the gum is very injurious, because "it may callous over afterwards and become so hard" that the tooth cannot get through so easily as if let alone; and secondly, "that the child may bleed to death," after the operation.

To the first of these the reply is, that no union of the gum after it has been cut will ever be any firmer than the gum itself was before it was cut. Cutting the gum may be as great a relief to an obstruction as when an incision is made over a bullet, a piece of bone, a splinter of wood, or a fragment of needle beneath the skin, and the system is trying alone to help it to the surface. More than this, the tooth is not only below the mucous membrane of the gum, but it may be within the sac in which it was formed, and which the force of nature is trying to perforate. If this covering be once cut across, its union (if it ever unites again) will be less perfect than before, and the patient's suffering will be relieved. Suppose the gum should heal after the incision, and the child's sufferings should recur; that is not a good reason for withholding relief now. And if it should suffer again, it can be relieved a second time, and even a third time. I never saw the case in which, if the gum lancet went well through, and was felt upon the surface of the tooth, there was any trouble with that particular tooth afterwards. It surely never could retract, and become deeper in the jaw than before.

The first effect of the incision is the relief of local pain by the oozing of blood. This is more particularly the case in those instances in which the gums are dry and hot, and there is no secretion from the mucous follicles nor from the salivary glands. An incision simply through the mucous membrane is followed by blood, and that by saliva in a very short time, giving great temporary relief; but if the lancet is felt to graze the tooth through the whole length of the incision, the relief is more than temporary; the immediate covering of the tooth never unites again, the growth of the tooth and the elasticity of the tissue preventing that process. If the offending tooth be a molar, a crucial incision is better than a longitudinal one. The relief is often so great from gum-cutting that I have seen children who were crying with agony,

before the operation, look up in my face and laugh through their tears; and I have known a child to come to me, and show by unmistakable signs her remembrance of the benefit received on another occasion, by turning her head over upon my knees, and pointing to the swelling above a cuspid tooth.

The second effect of gum-cutting is the relief of obstinate diarrhœa, obstinate constipation, and of all apparent signs of diseased brain, such as vomiting, stupor, convulsions, enlarged and non-contracting pupil. This relief I have seen more than once during the past year.

The second notion with which non-professional persons are possessed is the hæmorrhagic. I have no doubt that in my thirty years of professional life, I have had quoted to me, on an average, more than one case a year of fatal hæmorrhage from gum-cutting. But I never saw such a case, and I never spoke with a person who had seen one; it had always "been told to her" by some one else. I can imagine that it might be the possible result in one of the so-called "bleeders;" but a prick with any other instrument in any other part would in that case be likely to have the same result. The nearest approach to this condition that ever came under my observation was some ten or fifteen years ago, in the case of a young man of at least twenty-five years of age, who died of hæmorrhage following the extraction of a tooth.

There is no operation, no medicine, which may not be followed by death. So sometimes neglect of medicine or neglect of an operation is followed by death. To offset any death resulting from gum-cutting (an accident which I never witnessed and never heard well authenticated), I could point to large numbers of infants whose comfort has been established, whose lives I believe to have been saved. There are many more, whose comfort I believe to have been sacrificed, and whose lives I believe to have been destroyed, by the prejudice against the gum lancet.

RECENT PROGRESS IN PHYSIOLOGY.

BY H. P. BOWDITCH, M. D.

VASO-MOTOR NERVES.

One of the most important recent advances in our knowledge of the physiology of the circulation is the distinct recognition of the existence of a class of nerve-fibres whose function is to *dilate* the vessels to whose muscular walls they are distributed. That vascular dilatation may follow the stimulation of a nerve supplying the vessels under observation is not a recent discovery. The fact that irritation of the chorda tympani produces vascular dilatation and increased secretion in the submaxillary gland was observed by Bernard as long ago as 1858, but it is

only within a few years that the cause of this dilatation has been shown not to lie in the increased glandular activity. This point may be regarded as having been settled by the experiments of Heidenhain,[1] who found that on a dog under the influence of atropine, irritation of the chorda tympani caused no increased salivary secretion, though the vascular dilatation took place as usual.

For a long time the fibres of the chorda tympani in the submaxillary gland and the nervi erigentes distributed to the corpora cavernosa penis, as described by Eckhard[2] and Lovén[3] were regarded as the only nerves possessing the power of producing vascular dilatation in the parts supplied by them, the observations of Bernard which led him to attribute to the pneumogastric nerve a similar power over the vessels of the kidney having lacked confirmation. Quite recently, however, Vulpian[4] has shown that irritation of the lingual nerve causes a vascular dilatation in the corresponding side of the tongue. That this effect is due to the fibres of the chorda tympani, which are mingled with the lingual nerve, is proved by the fact that the dilatation does not take place when the former nerve has been divided, fifteen days previously, in the tympanum, and its fibres thus caused to degenerate throughout their course. Vulpian's observation, therefore, simply shows that the dilating power of the chorda tympani is not confined to those fibres which are distributed to the submaxillary gland.

Although the power of the nerves to dilate the blood-vessels has not been distinctly demonstrated, except in the regions alluded to, Vulpian is of the opinion that "vaso-dilator" nerves exist throughout the body, mingled with "vaso-constrictors" in such a way as to prevent their functions from being readily investigated. A similar view has also been adopted by Goltz,[5] who has invoked the power of the "vaso-dilator" nerves to explain phenomena which are usually regarded as caused by a paralysis of the "vaso-constrictors." The well-known fact that section of the sciatic nerve in an animal is followed by a rise of temperature in the corresponding limb, and that this increased temperature is only a temporary phenomenon, is explained by Goltz on the hypothesis that "vaso-dilator" nerve-fibres in the sciatic nerve are irritated by the section, causing a dilatation of the blood-vessels of the limb, and that after the effect of this irritation has passed away, the vessels resume their normal dimensions. In support of this view, Goltz presents the following observations: —

1. After the rise of temperature caused by section of the sciatic nerve

[1] Pflüger's Archiv, v. page 309.
[2] Beiträge, iii. page 125.
[3] Ludwig's Arbeiten, 1866, page 1.
[4] Leçons sur l'appareil vaso-moteur: Paris, 1875, page 154.
[5] Pflüger's Archiv, ix. page 174.

has disappeared, it may be again produced by a second section of the nerve nearer the extremity.

2. If the rise of temperature which follows section of the sciatic nerve is really a phenomenon of irritation, a similar effect ought to be produced by other sorts of irritation; for example, by electrical stimulation of the nerve. Goltz finds that this is actually the case, electrical or chemical irritation of the lumbar cord or of the sciatic nerve, either in its continuity or at its peripheric end, causing a decided increase of temperature in the lower limbs. A slight and transient fall of temperature which generally precedes the rise is referred by Goltz to a displacement of the thermometer at the beginning of the irritation by the tetanic contraction of the muscles of the leg.

Goltz therefore concludes that the section of the nerve of a limb irritates the vaso-dilator fibres contained in it, and that this condition of irritation may last days or even weeks. It is to be noticed that this theory affords no explanation of the fact that irritation of the sympathetic nerve of the neck always causes, under normal conditions, a contraction of the vessels of the head, while its section with equal certainty produces vascular dilatation.

Quite recently Putzeys and Tarchanoff,[1] working under the direction of Goltz, have subjected the whole question to a renewed investigation. They find that section of the sciatic nerve on dogs, ducks, and frogs causes an immediate dilatation of the vessels of the foot, made evident both by the appearance of the vessels where they can be seen, and by the fact that blood flows more abundantly from a wound in the foot on the side where the nerve has been divided than on the opposite side. Electrical irritation of the peripheric end of the divided nerve causes, on the other hand, a decided contraction of the vessels, which, when the irritation lasts several minutes, gives place to a dilatation caused by exhaustion. Section of the sciatic nerve of a dog causes, as Goltz also found, a decided rise of temperature in the foot of the same side, while irritation of the peripheric end of the nerve causes, when the dog is curarized to paralyze the voluntary muscles, not a rise, but a fall, of temperature. The rise of temperature observed by Goltz as the result of irritation of the sciatic nerve is regarded, therefore, by Putzeys and Tarchanoff as the effect of over-irritation or exhaustion. The existence of "vaso-dilator" fibres in the sciatic nerve cannot therefore be considered as demonstrated.

In consideration of all these observations, the most probable view which we can take of the relations between the vaso-motor nerves and the vessels to which they are distributed seems to be the following: —

The smooth muscles of the blood-vessels are kept in a state of moderate tonic contraction under the influence of a plexus of nerve-fibres and

[1] Centralblatt für die medicinischen Wissenschaften, 1874, page 641.

ganglion cells closely surrounding and imbedded in the vascular walls.[1] This tonic contraction is increased by an impulse coming from the central nervous system through the "vaso-constrictor" nerves.

That these "vaso-constrictor" nerves are in a state of constant activity is evident from the fact that vascular dilatation follows their section (for example, in the cervical sympathetic or sciatic nerves). This vascular dilatation is, however, not permanent. After ten days or a fortnight, the vessels assume their original dimensions. To explain this, we must assume that after separation from the central nervous system the nervous plexus surrounding the vessels gradually acquires a higher degree of activity than it possessed before. A justification of this hypothesis is found in the analogous observation that the reflex centres in the spinal cord acquire a greater irritability after their separation from the brain by a section in the cervical region.

The "vaso-dilator" nerves act by inhibiting the activity of the ganglion cells in the nervous plexus around the vessels, thus causing a diminution of the vascular tonicity. These nerves are not in a state of continual activity, as is proved by the failure of the vessels to contract when the nerves are divided.[2] They are to be regarded, therefore, not as constant but as occasional antagonists of the "vaso-constrictor" nerves.

According to this theory, there is an evident analogy between the muscular walls of the blood-vessels and the heart. In both, the conditions of activity are contained in the organs themselves; and in both, influences derived from the central nervous system may either increase or diminish this activity, the vagus nerve being analogous to the vaso-dilators and the "accelerator" nerve to the vaso-constrictors.

It will be noticed that this theory affords no explanation of the observation of Goltz, above alluded to, on the effect of a second section of the sciatic nerve on the temperature of the limb. Should this observation be confirmed, some modification of the above theory will be necessary.

(*To be concluded.*)

THOMPSON ON THE USE OF PHOSPHORUS.[3]

THE views of Mr. Thompson are already pretty well known to readers of the *Practitioner*, and this work presents those views in a somewhat amplified and systematic form. The author has worked out the pharmacy of the drug with considerable care, and offers us some formulæ which have already ap-

[1] See Vulpian, op. cit. page 36.

[2] Vulpian, Archives de Physiologie, vi. page 175.

[3] *Free Phosphorus in Medicine, with Special Reference to its Use in Neuralgia. A Contribution to Materia Medica and Therapeutics.* By. J. ASHBURTON THOMPSON. London: H. K. Lewis. 1874.

peared in the reports on therapeutics in this JOURNAL, as well as others which have not previously come under the writer's notice. One which he considers to possess many advantages is as follows: —

Tincture of phosphorus	ʒ iij. ɱ x.
Glycerine, enough to make	ʒ iss.
Spirit of peppermint	ɱv. M.

The tincture of phosphorus is a saturated one, and should be made with *absolute* alcohol.

A formula very similar to the above, given by Mr. Thompson in the *Practitioner*, and of which he makes the same statements as of the present one, has been used by the writer, who cannot agree with the author in saying that it is almost free from any phosphoric taste and does not cause unpleasant eructations. Patients refer to it as "decoction of matches." It is, however, as the author says, "the most elegant fluid preparation of free phosphorus as yet at command." A solution in cod-liver oil he considers as in every way preferable to the more usual one in olive oil. Pills he looks upon with distrust, although he speaks favorably of those made by two London firms; the precise method of manufacture, however, is not given.

The therapeutic portions of the book are worked out with a good deal of care, and no little attention is given to the toxic symptoms, a point which, on the author's own showing and with the doses he uses, is one of no small importance. We fear, however, that Mr. Thompson is to be looked upon as an enthusiast. If all that he says is true, the most plodding and cautious man of science, the acutest of lawyers, the most learned of divines, might find in a bottle of "No. 10" a more reliable and potent inspiration than is afforded even to the most bacchanalian of poets by his "little brown jug;" and for the benefit of the community a barrel should be kept on tap in all newspaper offices, courts, and State houses, with a hogshead of the largest size for the use of Congress. A large stimulant dose gives coolness, clearness, or dexterity of mind, while a short course of phosphorus confers freshness, *originality*, and energy on the mental processes.

The most important of the diseases in which phosphorus has been used by Mr. Thompson is neuralgia, where he claims great success for his favorite drug. Both here and in other diseases, it is necessary to use larger doses of the drug than are usually given. If frequent failures are to be avoided, at least one twelfth of a grain should be given every four hours *from the beginning*. A subsequent increase of the dose does not have the same effect.

In locomotor ataxy, Mr. Thompson gives no experience of his own, but puts together the four cases of Dujardin-Beaumetz, all favorable, with those of Mr. Bradley (eighteen in number) all unfavorable; of the latter, however, he remarks that the dose was not large enough to give the drug a fair trial.

He proposes it also for use as a stimulant in the later stages of low fevers. Venereal excitement is, he is sure, far from an invariable, or even a common, symptom of its use. It would appear that on persons in health its effect, in therapeutic doses, in this direction is nil.

Finally, he says, "Too great caution in the use of this body as a medicine cannot be enjoined. Nor should it be trusted at all to the hands of the inex-

perienced." The work may be regarded as a very readable and thorough monograph on a subject not very familiar to many physicians; and, making perhaps no more than the usual allowances for the enthusiasm of the advocate, the book is apparently a reliable one. We should certainly recommend its perusal to any one who wishes to use this drug efficiently and safely.

THE EARLY MEDICAL HISTORY OF THE UNITED STATES.

THIS work[1] comprises a large collection of historical and biographical matter relating to the early medical profession of this country. It was intended to form a part of a full history of the rise and progress of American education, which was thought desirable for the Vienna Exhibition, but which from unavoidable circumstances was never completed. It was compiled by Dr. Toner, of Washington, at the request of a convention of school superintendents who met in that city in 1872. Dr. Toner has worked with the zeal of an enthusiast in collecting from different sources a great amount of information now for the first time given to the profession. He has gathered many facts from local histories, medical biographies, and magazines, not accessible to the general reader, and has put them together in a compact form. It is evident that he has used largely the library of the Surgeon-General's office, which is by far the best collection of medical books in the country, and which will always be a monument to the wisdom and foresight of those who began it. The result of Dr. Toner's labor is considered of so much importance that it is now published by the Secretary of the Interior, on the warm recommendation of the Commissioner of Education.

We have had experience enough ourselves to know how difficult it is to have names and dates, when they are numerous, printed correctly, and while we look with much leniency upon mistakes in such matters, we feel bound to point out some for which the printer is not responsible.

Dr. Toner falls into a singular error when he says (page 24) that Dr Charles Jarvis married "a granddaughter of the first Baron Pepperille." We think that it would be difficult to identify this member of the English House of Peers. The truth is the lady was a granddaughter of Sir William Pepperrell, who was a baronet but not a baron. In speaking of Dr. Oliver Prescott, a brother of the hero of Bunker Hill, Dr. Toner says (page 26) that he was "a physician of Hanover." Dr. Prescott was born and always lived in Groton, Massachusetts, and died there, but not at the time given by our author. Dr. Oliver Wolcott was not a native of Massachusetts, as stated in the Contributions (page 66), but of Connecticut. It is said (page 57) that "in 1690 Governor Slaughter of New York died suddenly." This undoubtedly refers to Governor Sloughter who died in the summer of 1816. There are too many such mistakes for an accurate historical work. We pass over instances

[1] *Contributions to the Annals of Medical Progress and Medical Education in the United States before and during the War of Independence.* By JOSEPH M. TONER, M. D. Washington: Government Printing Office. 1874. Pp. 118.

like the following, which indicate careless proof-reading. Francis Lee Baron is written (page 19) for Francis Le Baron, Melton (page 22) for Milton, Shay's Rebellion (page 27) for Shays's Rebellion, besides many others which might be noted.

We had always supposed that the Bible we are in the habit of reading, which is known as the King James's version, was first printed in the reign of that monarch, but we are told (page 60) that it was published in 1582. Such errors throw a feeling of doubt over the whole book, — not the Bible, but the other one.

Dr. Toner's style is not always clear, and does not always conform to strict idiomatic usage; but even with these defects he has put the medical profession under great obligations to himself for making a beginning. The work really has much merit, — so much that its demerits are the more conspicuous. We sincerely hope and trust that Dr. Toner will publish, at some future day, a revised and enlarged edition of this book, which will fill a want that has long been felt.

THOMPSON ON THE URINARY ORGANS.[1]

We have here an American reprint of these well-known lectures. As an illustration of the favor with which they are regarded by the profession, we recall the fact that a French translation of them has recently been published in Paris by two of the leading medical publishers simultaneously. The French version contains three additional lectures on the treatment of vesical calculus, published in the *Lancet* (March, April, and December, 1874) since the last English edition of the lectures. It is somewhat to be regretted that the American publishers did not include these lectures in their volume.

PROCEEDINGS OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

F. B. GREENOUGH, M. D., SECRETARY.

December 14, 1874. — *Poisonous Action of Tincture of Arnica upon the Skin.* — Dr. J. C. White read a paper on this subject which is presented in full in the present number of the Journal.

Dr. Cabot said that he had seen several such cases, and spoke especially of a gentleman, both of whose legs were covered with acute eczema, after an application of arnica.

Dr. Jackson said that the observations reported by Dr. White were interesting ones, and should be generally known, as he thought many general practitioners considered arnica a perfectly harmless application.

[1] *Clinical Lectures on Diseases of the Urinary Organs.* By Sir Henry Thompson. Second American from the third and revised English edition, with illustrations. Philadelphia: Henry C. Lea. 1874.

Enchondroma of the Foot. — Dr. Cabot reported the case and showed the specimen.

The patient was a girl twenty-two years old. Seven years ago a flat-iron fell on her foot. Soon afterwards she noticed a lump at the point of injury. The swelling grew very slowly and with little pain for five years. The patient was somewhat lame, however, pressure on the sole of the foot causing pain. At the end of five years the tumor was about the size of a marble. Since then it has grown more rapidly, and has been more painful. Lameness has been increasing. At the time of the patient's entrance to the hospital the tumor was hard, immovable, somewhat red over the centre, painful, and tender to the touch. It was irregular, and felt as if it were lobulated. The corresponding toe was retracted.

On removal, the growth was found to be an enchondroma, of remarkable hardness and firmness. It had involved the distal end of the third metatarsal bone, and was in shape an irregular cube, its respective diameters being about one, one and a quarter, and one and a half inches. On section, the external portion was found to be the densest, being, in fact, an almost bony capsule, with here and there deposits of softer enchondromatous tissue. The central part was softer, and, as far as external appearances went, not unlike the cancellated structure of bone.

Dermoid Cyst of the Ovary. — Dr. Cabot also showed a dermoid ovarian cyst, which he had removed. (A full report of this case will be published later.) The patient had some vomiting on recovering from the ether and during the first twenty-four hours, and an attack of dyspnœa with suffocating cough the first night. After that time she steadily improved, the temperature and pulse falling regularly each day, and being at date (December 14) respectively 99.7°, and 88°. The cyst with its contents weighed eight pounds and four ounces. It contained a thick fluid, cheesy masses, hairs, and one perfectly formed, full-sized incisor tooth.

Case of Incarceration of the Colon resulting from a Previous Attack of Typhlitis. — Dr. Lyman reported the case and showed the specimen.

The patient, a man aged thirty-eight years, entered City Hospital October 19, 1873, with a well-marked attack of typhlitis. At the end of three weeks he was discharged well. At that time he was under the care of Dr. Stedman.

November 9, 1874, the patient was readmitted, reporting that he had been in good health since the previous attack until two days before his entrance, when he went to bed as well as usual, but towards morning was awakened by colicky pains in the left inguinal region, attended by vomiting and diarrhœa. The diarrhœa ceased at seven o'clock in the morning, after which time there had been no movement; the colicky pains continued, the abdomen becoming quite tympanitic and tender on pressure, vomiting recurred frequently, and no food was retained. Micturition was painful, tongue coated, face flushed but not pinched, decubitus dorsal, but limbs were extended; respiration was easy, motions of diaphragm not restrained. The patient had passed but a small amount of urine during the previous twenty-four hours. An injection of oil and turpentine was given, but it came away without fæcal matter. Turpentine stupes were applied, and the pain was controlled by subcutaneous injections of

morphine. A small amount of urine was withdrawn by catheter. Temperature 100°, pulse 116, respiration 46.

He remained about the same until the 13th, when an injection, after five grains of calomel with half a grain of opium, followed after four hours by oil, brought away one hard fæcal mass and a good deal of flatus. That night he had a large, loose dejection. From that time he gradually improved.

On the 22d, the entry in the case book was as follows: "The tympany and pain having sufficiently disappeared to allow of deeper pressure, a hard mass was discovered in the left inguinal region, as large as the fist. No change was effected in its shape; on pressure it felt hard and immovable." Ox-gall in small doses of castor-oil was ordered three times daily.

November 28th. For the past week the patient has continued about the same, but still has pain at times in the same position as before. The tumor is apparently unchanged. A saline mixture was ordered.

December 2d. Bowels continue loose, and the tumor diminishes. The patient still vomits occasionally, and to-day is quite feverish and complains of prostration. A fever-mixture was substituted for the saline mixture.

December 3d. The patient fails in strength. Fæcal discharges still contain hard lumps. Vomited bile several times. Whiskey was ordered, and as he asked for cider it was allowed.

December 4th. Some appearances of jaundice in conjunctivæ and face. The patient has had a severe rigor. Tongue dry and coated.

December 6th. Pulse weaker. A well-marked gurgling on pressure over tumor. Patient again complains of pain all along the transverse colon. Bowels moved by injection.

December 7th. A violent attack of colic referred to region of tumor. Pain relieved by morphia.

December 8th. Abdomen quite tympanitic this morning, and tender. Pulse more rapid and feeble. Great prostration. In the afternoon the patient complained of great pain, became collapsed, sank rapidly, and died.

Autopsy, forty-two hours after death. A few ounces of serum in left pleural cavity. Pleural surfaces covered with creamy lymph. Lungs congested. Right ventricle of heart enlarged. Large soft clot in right side of heart. Two or three thickened spots on aorta. Heart a little pale; otherwise normal.

Marked tympany of abdomen. General peritonitis of both old and recent date, with but very little fluid in peritoneum. All the intestines covered with lymph, gluing them together, but not so firmly that they could not be separated by the fingers. Colon exceedingly distended. On the lateral and posterior portions of the peritoneal cavity, adhesions much stronger, requiring the aid of a knife and great care so as not to wound the intestine. The cæcum was so firmly bound to the abdominal wall by old adhesions that its parts could not be cleanly dissected out, and one or two circumscribed abscesses were formed in these adhesions. A coil of the small intestine was firmly bound to the abdominal wall just outside the descending colon and below the crest of the ilium behind, forming with its mesentery an arch through which the colon had to pass. This arch was also filled with a loop of small intestines, and other similar loops were pretty firmly adherent about and above it, so as to nearly

if not quite strangulate the colon. Vessels were observed in these adhesions, proving that they were not of recent date. The descending colon was pressed upon and was nearly empty. The transverse and ascending colon was much distended with gas, and contained a tolerable amount of fæces. Between the colon and this group of intestines, about the obstructed portion immediately above the sigmoid flexure, were very strong adhesions, and in them a circumscribed abscess of old date.

The descending colon below the obstruction was contracted to the size of the small intestine. The kidneys were rather large; perhaps a little cloudy. Brain normal. Gall bladder large, and filled with bile. Liver contained numerous puriform collections in the branches of the portal vein, some of the branches being as large as a crow quill. There were also minute metastatic abscesses in groups and surrounded by a greenish discoloration.

The general intestinal surface was nearly normal. In the appendix cæci, about an inch and a quarter from its orifice, a "cherry stone" (?) lay loose; beyond this, the appendix was impervious and thoroughly bound to the parietal peritoneum. A number of circumscribed abscesses were scattered over the peritoneum.

Dr. Lyman remarked that the foregoing case was especially interesting from a diagnostic point of view. It was shown to the hospital students for the first fortnight as a case of obstruction from some unknown cause, and not as peritonitis, for which the patient was admitted. After the obstruction had apparently yielded, the tumor was discovered, and for a week or more it was hoped it would prove to be nothing more than a fæcal accumulation, or possibly some glandular growth; but the obstruction recurring, the case proved fatal. The history rendered it probable at first that the obstruction might be due to old adhesions about the ileo-cæcal region, but though carefully sought for, there was at no time discoverable any especial tenderness or swelling in that vicinity, the pain being persistently referred to the other side, where in fact the incarceration was eventually proved to be located. The fatal result from peritonitis and pyæmia adds another to the cases which have been presented to the society illustrating the consequences which may eventually happen to a patient who has apparently recovered entirely from tuphlo-enteritis.

Aneurism of the Aorta. — Dr. Fitz showed a specimen of aneurism of the arch of the aorta, sent by Dr. A. O. Hitchcock, of Fitchburg. The sac was as large as an infant's head. The mucous membrane over the origin of the right primary bronchus was extensively ulcerated, and the aneurismal wall was thin at the corresponding part. The cavity of the right chest contained about two quarts of bloody serum, and the lung was compressed. Dr. Hitchcock had removed three pints of fluid from this side with the aspirator, but the lung did not expand after the operation. The dyspnœa was relieved, however, and did not return with the subsequent effusion. The left lung and pleural cavity presented no abnormal appearances.

Dr. Jackson said that he wished again to call attention to the fact that in the ulceration of the mucous membrane of the trachea and œsophagus which is so frequently found when these organs are pressed upon by an aneurismal tumor, nature seems to be working contrary to her usual course of striving to miti-

gate the evil effects of disease, as it is evidently an attempt to form a communication between the aneurism and the organ pressed upon; the result of this process would of course be fatal. He also referred to the fact that the heart itself was healthy, in spite of the gravity of the disease so near it, a fact often noticed in these cases.

Extensive Disease of Kidneys and Bladder. — Dr. Fitz showed the kidneys and bladder from a patient of Dr. Cabot. The left kidney presented a marked degree of arrest of development, being one inch and a half long, a quarter of an inch thick, and half an inch in breadth. The left renal artery was of about the volume of a piece of ordinary twine. The surface of the kidney was smooth, presenting no indication of a division into lobules. The ureter was but little smaller than normal. The right kidney, nearly double the normal size, was six inches long and three inches broad. The pelvis and ureter were very much dilated, the latter of the volume of the thumb in parts, its walls thickened. Both were filled with pus and urine, and the kidney had become sacculated. The surface of the sacculi was smooth, except in one instance, where a cheesy mass of the size of a cherry existed as part of the wall, its surface eroded, and continuous with a limited infiltrated and ulcerated portion of the calyx. The secreting substance of the kidney presented an advanced degree of fatty degeneration.

The bladder was contracted, its mucous membrane injected and ecchymosed. A sinus extended from near the verumontanum, behind the prostate, into the cellular tissue between the rectum and the bladder, where an abscess existed extending upwards as far as the ends of the seminal vesicles and the internal sphincter. The walls were dense, pigmented, and somewhat trabeculated. A few old adhesions existed between the peritoneal surfaces in Douglass's fossa. Between the bladder and the ramus of the pubes on the left, there was an abscess communicating with the rectum above the inner sphincter by an opening half an inch in diameter. Its communication with the urethra was certain, owing to the escape of urine from the rectum during life, and must have existed in front of the prostate.

CONCERNING THE SEWERAGE OF BOSTON.

The small-pox epidemic being under control, the attention of the Board of Health of Boston, which that epidemic had called into existence, was at once turned to the general sanitary condition of the city. Numerous reforms were started, and a thorough inspection of the city showed that the demand made by the public for the creation of a Board of Health had been made none too early.

One of the first defects in the sanitary arrangements of the city, to which public attention was called, was the condition of the sewerage. The rapid growth of the city, the extensive filling of large sections, and the consequent enlargement of a system of sewerage utterly inadequate to the demands necessarily made upon it, have all conspired to bring about a condition of things

far from flattering to those members of the city council who have in charge this special department of the public works.

In the first report of the Board of Health (1873), the attention of the city council was called to the very serious defects which then existed in the sewerage of the city. These statements, however, were allowed to pass unheeded, and thus a bad matter rapidly grew worse. At length the health of that portion of the city lying adjacent to the so-called Stony Brook sewer began seriously to suffer, and, May 11, 1874, the Board of Health sent to the city council a special communication calling their attention again to the existing defects in the sewerage system of the city, and citing as proof the numerous cases of serious illness then existing in the neighborhood of Stony Brook sewer. Forced at length by public opinion and the threatening of lawsuits, the committee on sewers decided that the old sewer should be extended from Centre Street through Amory and School Streets. A temporary relief was at once experienced by the residents of that section of the city.

In the second annual report of the Board of Health (1874), it was stated that the whole system of sewerage was wrong. It is well known that the city is almost perfectly encircled by the open mouths of sewers constantly discharging their contents where, with the next receding tide, they are left to disseminate their foul odors over whatever portion of the city the prevailing wind shall favor. A large section of the city is entirely destitute of any proper sewerage whatever, and the sickly condition of these districts is a disgrace to those in whose hands alone the remedy lies. The Board of Health, by the very provisions of the ordinance which created it, can only indicate how great is the need of reform in the matter of the city sewerage; it is powerless to execute even the simplest remedial measures.

Just as the term of the city council for 1874 expired, the Board of Health sent in its fourth remonstrance against the existing evil, and urged more strongly than ever that measures be at once taken to remedy the condition before some fearful epidemic comes, as come it must if some provisions be not at once adopted for furnishing to the whole city a proper supply of pure, fresh air, unpolluted by a defective system of sewerage.

Thanks again to a successful citizens' movement, a new and better city council has come into power. To them the fourth communication of the Board of Health has been referred. In this communication the defects in our present system of sewerage are clearly pointed out and the method of remedying the evil is also alluded to. The most important suggestion in that communication is that a scientific commission be at once appointed to make a careful examination of the city, and report a system of sewerage which shall be made with reference to the future growth as well as the present needs of the city.

In his inaugural address the mayor strongly indorsed the communication of the Board of Health, and we look for speedy and favorable action on this subject by the city council, who alone have power to act in the matter.

The past policy of the sewerage department has been at least one of folly, if not of culpable neglect; we look for the adoption of a far different course of action by the present city council, if they cherish at all the hope of preserving a good sanitary condition of Boston.

THE NEW CITY CHARTER.

THE new charter for the city of Boston proposes to make some very important provisions for the future health of the inhabitants. The health department is to consist, as at present, of three persons, one of whom is to be a physician, and only one of the board is to be appointed annually. The rights, powers, and duties of the board are to be such as the law of the State gives to all such officers, and among them are sundry duties not belonging to our present board. Their labors are to be increased nominally, it is true, but as it is proposed to place under their control many matters now attended to elsewhere, it will be strange indeed if they are not able to do their work with more satisfaction both to themselves and to the public. There can be no excuse for a continued unwholesome spot in Boston if the responsibility be placed in the hands of three honorable and capable men, such as we believe our present Board of Health to be. There will be no necessity to wait for one set of men to decide before another set can act. It will be for them to keep our streets clean; our vaults and cesspools free from offence; our provisions wholesome; our public baths in order; our children vaccinated; our burial-grounds in neat condition. The choice of city physician and of all other officers of health will be made by them; and it is hardly probable that, with a board appointed as this is likely to be, there can be any of the sly elections such as have sometimes been made when it was necessary to have the concurrent vote of two legislative bodies.

At first we were a little disappointed that the City Hospital was not to be under the control of this same body, but on looking at the sections concerning this matter we are satisfied that a better plan is proposed. Indeed, it would be placing too much labor upon the three men. The appointment of a new man yearly, to act for five years with four men who have already been in office as trustees, is very much better than the present plan, by which a political party vote may be the means of putting a bad man in or a good man out of office.

If other parts of the new charter are as good as this, we hope it will be adopted.

THE USE AND ABUSE OF THE GYMNASIUM.

THE two severe accidents occurring during gymnastic exercise recorded in our hospital reports, in one case proving fatal, bring into a strong light the dangers attending the system on which our gymnasia are usually conducted. It is rare, fortunately, that the faults of this system are made apparent by a melancholy accident like that which occurred lately at the gymnasium of the Institute of Technology, but it is only in such cases that the public generally is warned that exercise in the gymnasium is not confined to moderate limits, but may mean work of a much more serious character. The weak and the strong alike are

led step by step until the point of endurance has been passed by many, in a vain attempt to emulate feats which should be attempted only by the most powerful and skilled gymnasts. Indeed, some of the performances daily practised by many of our young men should be absolutely prohibited in the gymnasium. It is hardly necessary to say that great discrimination should be made in regard to the character of exercise suitable to each individual; and that is particularly true in the case of young men and boys, who are the most constant frequenters of the gymnasium. During the period of adolescence injuries may be inflicted which will eventually break down the most powerful frames. Cases of this kind are common enough to the physician.

The remedy is a simple one. Place the gymnasium under the control of a medical officer who shall be the sole judge of the exercise suitable for each individual. Exclude acrobatic performances altogether, and we shall hear less of strained hearts and weakened lungs, while severe injuries like those we have to-day to record will be unknown.

This system of supervision, we understand, has been fully tried at Amherst College, and has worked in the most satisfactory manner.

MEDICAL NOTES.

— Professor Billroth, of Vienna, has recently, for the second time, performed the operation of extirpation of the entire larynx. The patient, a man aged fifty years, had for some time suffered from hoarseness and increasing dyspnœa. Dr. Schrötter, by laryngoscopic examination, detected on the left vocal cord a nodulated growth, apparently adherent to the mucous membrane, and which he diagnosticated to be an epithelioma. By the rapid progress of the disease the larynx became affected and the dyspnœa constantly increased, so that Dr. Billroth proposed to operate, giving at the same time a favorable prognosis with regard to the return of the disease, on the ground that no infiltration of the adjacent lymphatic glands could be detected. After the operation, a microscopic examination of the specimen completely confirmed the diagnosis of Dr. Schrötter. The patient died in five days, apparently from hypostatic pneumonia.

— According to Professor Friedreich (*Medical Times and Gazette*) the insufficiency of the valves of the femoral veins is a serious condition, inasmuch as it favors the development of varix and œdema of the legs, and may give rise to profuse venous hæmorrhage in operations on the upper part of the thigh. The valvular insufficiency, which is not uncommon, may be detected by rotating the thigh outwards and laying the finger lightly on the upper part of the vein, immediately below Poupart's ligament. If the upper valves are insufficient, there may then be felt a strong whiz when the patient gives a short cough or otherwise rapidly contracts the abdominal muscles. Under the same circumstances the ear, instead of the finger, may detect a deep bruit.

— Professor Austin Flint, Jr., has been appointed Surgeon-General of the State of New York, on the staff of Governor Tilden.

— In the last number of the *Nation* there is a review of Mr. Frank Vincent's book, the "Land of the White Elephant." The following extract may be interesting to young mothers: —

The King of Ava's elephant is thus described: "The Mandalay animal I found to be a male of medium size, with *white eyes*, and a forehead and ears *spotted* white, appearing as if they had been rubbed with pumice-stone or sandpaper; but the remainder of the body was as 'black as a coal.' He was a vicious brute, chained by the fore-legs in the centre of a large shed, and was surrounded with the 'adjuncts of royalty' — gold and white cloth umbrellas, an embroidered canopy above, and some bundles of spears in the corners of the room. The attendants told me that a young one . . . . was suckled by twelve women hired for the express purpose; these elephant 'wet-nurses' receiving 30 reals per measure, and thinking it a great honor to serve in such capacity."

This is suckling extraordinary, but the custom of the country in this respect is apt to excite comment from strangers. Mr. Vincent says: "I have frequently seen babes at their mother's breast alternating the nourishment of 'Nature's Nile' with pulls and puffs at their cheroots."

— It is with great gratification that we record the re-appointment of Dr. Dale as Surgeon-General of Massachusetts. The position has long been filled most worthily by the present incumbent, and the State is to be congratulated upon Governor Gaston's wisdom in determining the "survival of the fittest" in the evolution attending his staff-appointments. Very few realize how persistent Dr. Dale has been in maintaining the honor and dignity of the profession in the face of uncommon intrigue and opposition.

— Dr. Keith, of Edinburgh, is said to have performed ovariotomy now 196 times, with the low mortality of late years of only some 10 per cent. of the cases operated upon.

The Committee of the American Medical Association are again before Congress with a bill for increasing the efficiency of the Army Medical Staff.

— We learn from the *British Medical Journal* that a case of death from the administration of bichloride of methylene occurred a short time since at the Royal London Ophthalmic Hospital. The patient was suffering from caries of bone near the lachrymal sac. Operation was determined on, and Mr. Buller administered the anæsthetic, bichloride of methylene, by means of a perforated leather inhaler covered with flannel. Three drachms were inhaled, and in two minutes the breathing became stertorous. After the operation, the pulse at the wrist suddenly failed, and then the respiration ceased. All known means for restoring animation were employed, but without avail.

SURGICAL OPERATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.

[SERVICE OF DRS. BIGELOW AND CABOT.]

SINCE the last report (January 7th) operations have been performed under ether in the following cases: —

1. Vesico-vaginal fistula. 2. Cancer of upper jaw. 3. Compound fracture of tibia and fibula into ankle-joint. 4. Fracture of cervical vertebræ. 5. Necrosis of nasal bones after injury: deformity of face. 6. Hydrocele of cord. 7. Hydrocele of tunica vaginalis. 8. Cystic tumor of breast. 9. Necrosis of tibia. 10. Epithelial cancer of anus and rectum.

2. *Cancer of Upper Jaw.*— In this case, which was past operation, the patient, an old woman, was suffering excruciating pain which she referred to the cheek covering the tumor, and to the ala nasi. Dr. Bigelow experimentally divided with a tenotomy knife, through a puncture in the cheek, the infra-orbital branch of the superior maxillary nerve. The operation has been followed by an entire remission of pain during the last week.

3. *Compound Fracture of Tibia and Fibula into Ankle-Joint.* — A middle-aged man fell through a culvert, striking squarely upon his feet. He was admitted to the hospital three weeks ago, the accident having happened twelve days before. There was a compound fracture of both bones at the junction of the middle and lower thirds of the leg, with great displacement; the foot was œdematous. The patient exhibited signs of prostration out of proportion to the obvious injury; it was apparent that he would die soon, unless he should rally so as to justify an amputation. Dr. Bigelow decided to perform a provisional amputation at the fracture, through the tissues infiltrated by lymph, rather than to open afresh the sheaths of sound muscles higher up. Upon examining the ankle after its removal, the prostration of the patient was explained by the discovery of extensive cracks leading into the joint. The anterior and posterior edges of the tibia were thus in part detached by the convex surface of the astragalus being forced against it when the patient alighted on his feet. The injury closely resembled the crack which sometimes occurs at either end of the radius from force similarly applied.

4. *Fracture of Cervical Vertebræ: Extension.* — A young man while doing what is known at a gymnasium as the "giant's swing," at arms-length around a horizontal bar, lost his hold and struck the floor upon his back, beyond the mattress, at a distance of twelve feet, producing instantaneous and complete paralysis of the limbs. The patient breathed comfortably, however, by his diaphragm. Retention of urine was a constant symptom until shortly before death; consciousness was unimpaired during the same period. A depression was felt in the region of the sixth cervical vertebra. Moderate extension was made under ether by Dr. Cabot, during which priapism suddenly ceased and did not reappear. On recovering from ether, the patient expressed himself as feeling easier. Death occurred twenty-four hours after the accident, the respiration becoming labored during the last few hours. There was no autopsy.

5. *Necrosis of Nasal Bones after Injury: Plastic Operation.*— The patient

was a young man. The bridge of his nose had completely disappeared, and an orifice three quarters of an inch in diameter exposed the nasal cavity at this point. Dr. Bigelow filled this with a triangular flap from the forehead. The stitches were removed on the third day, union having taken place, even of the wound in the forehead. Dr. Bigelow remarked upon the importance in plastic operations of making the flap so large and so loose that it will lie in exact apposition with every part of the edges to which it is to be united, even before stitches are introduced. A convenient practical rule in plastic operations, of the nose or eyelid, for example, is to carefully locate the nearest point to which it is safe to bring the incision upon the distal side of the pedicle. When the patient is etherized, the skin is to be punctured at this point with the sharp leg of a pair of compasses; the other leg, being now placed upon the most remote extremity of the wound which is to be filled, is turned around upon the sound temple or forehead, and a second puncture made. This puncture marks the extremity of an adequate flap, so far as its length is concerned. Again, a cicatrix which requires a plastic operation, generally represents a comparatively large wound and also the maximum contraction of which the part is capable. It is therefore useless to dissect up its edges in the hope of further approximating them. For example, the only good operation for an everted lower lid, is by taking a sound flap from the temple.

10. *Epithelial Cancer of Rectum and Anus*, of two years' duration, in a patient seventy-eight years of age. The sphincter was divided by Dr. Bigelow in the hope of relieving the excessive pain of defecation.

H. H. A. Beach, M. D.,
Surgeon to Out-Patients.

SURGICAL OPERATIONS AT THE BOSTON CITY HOSPITAL.

[service of drs. cheever, thorndike, wadsworth, and gay.]

The principal operations performed during the week ending Friday, January 8th, 1875, were as follows: —

1. Tracheotomy. 2. Paraphimosis. 3. Strangulated hernia. 4. Epithelial cancer. 5. Dislocation of radius and ulna, with probable fracture of the coronoid process. 6. Divulsion of stricture of the urethra. 7. Amputation of thigh. 8. Perineal fistula. 9. Canthoplasty. 10. Hare-lip. 11. Caries of tibia. 12. Removal of condylomata from anus. 13. Ingrowing toe-nail.

1. *Tracheotomy.* — A boy, six years old, had been sick a week with dyspnœa, cough, and hoarseness. When brought to the hospital the patient's circulation was poor; his lips were livid, and he was suffering from imperfectly aerated blood. An inspection of the fauces showed the palate and pharynx lined with a membranous exudation. A little ether was given him on an ordinary sponge without a towel, and tracheotomy performed by Dr. Cheever. As soon as the trachea was opened, a large quantity of softened false membrane was expelled. A moderate-sized tube was fastened in the trachea, and the child placed in the steam-room. He was soon asleep and breathing easily

but in the course of the following twelve hours dyspnœa returned, although the tube was quite clear. He sank and died from suffocation and exhaustion, the air passages below the tube becoming obstructed with false membrane. The disease was considered to be diphtheria.

2. *Paraphimosis.* — The patient was thirty-nine years old, and had had paraphimosis five days. The prepuce was greatly swollen. There was a line of ulceration at the point of constriction, threatening to destroy the glans and prepuce. The tight constricting portion was fully divided, and a cold water dressing applied.

3. *Strangulated Hernia.* — The patient is a young man who has had an inguinal hernia for several years. It has always been partially reducible till about twenty-four hours before his admission to the hospital on the 5th inst. There had been vomiting, pain, and constipation for twelve hours. A large, firm, tense tumor extended from the right internal inguinal ring to the bottom of the scrotum. It was dull on percussion, gave no impulse, and was irreducible. The patient was etherized, and, after a trial of moderate taxis, herniotomy was performed by Dr. Cheever. An oblique incision four inches long was made over the neck of the tumor. The pillars of the external ring were exposed by a careful dissection, and nicked to relieve the constriction which they produced. On opening the sac about twelve ounces of serum ran out, when the contents were found to be a small knuckle of dark-brown intestine enveloped in a large mass of omentum. The latter contained some extravasations, and was firmly adherent to the sac throughout its whole extent. The internal ring having been enlarged with the herniotome, the intestine was returned to the abdominal cavity. The omentum was left in the sac, as it was impossible to detach it. The wound was closed with silk sutures, and a compress and double spica-bandage applied.

4. *Epithelial Cancer.* — Five months ago, the patient, aged sixty, first noticed a "wart" on the right side of her forehead, about two inches above the orbit. It grew till at the time of the operation it was an inch and a half in diameter. The edges were hard and everted, and the base covered with a mass of fungous granulations. Dr. Cheever removed the growth entirely by an elliptical incision. It was not attached to the pericranium, nor were there any glandular complications. The wound was partially closed by silver sutures.

5. *Dislocation of Radius and Ulna, and probable Fracture of the Coronoid Process.* — While exercising in a gymnasium, nine weeks ago, a young man fell from a swing, striking on his right elbow. The arm was bandaged and kept in a straight position, although the physician, called at the time of the accident, diagnosticated a dislocation of the elbow, made extension, and called it reduced. When the patient entered the hospital, rotation was fair, but flexion was very limited, the arm being nearly straight.

He was etherized and the adhesions were thoroughly broken down. The radius was found dislocated backwards and outwards. On flexing the fore-arm to an angle of 45°, the ulna could easily be slipped backwards and forwards, about three quarters of an inch. This motion was attended by true crepitus. Dr. Cheever thought the tip of the coronoid process must be broken off; for, although a very rare injury, yet it would seem the most rational way of explaining the symptoms in this case.

The radius and ulna were reduced, flexed to a right angle, and placed upon an internal angular splint.

6. *Divulsion of Urethral Stricture.* — The patient is sixty years old, and has had a stricture of the urethra thirty years. He has had repeated attacks of retention, for one of which the bladder was tapped per rectum. The stricture is at the junction of the bulbous and membranous portions of the urethra. It has been treated by gradual dilatation, rapid dilatation, or divulsion, with Holt's and Gouley's instruments, and by perineal section; but, owing to his total neglect of the treatment advised, it is now nearly as bad as ever.

Dr. Cheever passed through the constriction a capillary whalebone bougie, which served as a guide to a No. 8 Gouley's tunneled sound. A large silver catheter was then passed into the bladder.[1]

7. *Amputation of the Thigh.* — The amputation was performed for a compound comminuted fracture of the leg. A man, thirty-four years old, was run over by a horse-car a short time before being brought to the hospital. The upper half of the left tibia and fibula was crushed, and the tibia was dislocated backwards. The soft parts as high as the knee were so badly lacerated as to preclude all idea of trying to save the limb. Dr. Thorndike amputated the thigh at the junction of the middle and lower thirds, by the circular method.

At the end of seventy-two hours there was union by the first intention throughout nearly the whole of the superficial part of the wound.

8. *Perineal Fistula.* — A boy, eleven years old, had a calculus the "size of a marble" removed from his bladder, by the lateral operation for lithotomy, seven years ago, in England. The wound never healed entirely till two years ago, when an operation was performed, after which the wound remained closed about six months. A second operation was done a year ago, without success. There is now a fistula on the median line an inch in front of the anus, which admits a No. 10 sound. He retains his urine fairly if he keeps quiet; but on moving about, the urine dribbles constantly from the fistula. He has been treated by tonics, diuretics, etc., and the fistula by various injections, by the solid nitrate of silver, the galvano-cautery and the actual cautery. There is no stone in the bladder at present, and his general condition is good. Dr. Thorndike dissected out the indurated walls of the fistula, and then applied the acid nitrate of mercury to the entire tract.

9. *Canthoplasty.* — The patient is a young man who has had trachomatous affection of the conjunctiva for several years, and this has caused contraction of the lid-opening, with greatly increased curvature of the tarsus. The increased friction of the lids on the globe has produced, and keeps up, cloudiness, and gives rise to calcareous deposit in both corneæ. To relieve the friction, Dr. Wadsworth performed canthoplasty on both eyes. The outer canthus was slit up about a quarter of an inch, the tarso-orbital fascia incised, and the skin and mucous membrane stitched together. It is proposed to remove the calcareous deposit from the corneæ, later.

10. *Hare-lip.* — This was the second attempt to close a single hare-lip. The first operation was done November 27, 1874, by Malgaigne's method, and for some unknown reason it failed. The child is now eleven weeks old, and has

[1] For a full history of this case, see this Journal for February 5, 1874.

a fissure of the lip, the hard and the soft palate of the right side, and a fissure of the soft and part of the hard palate of the left side. Although the cleft, both in the lip and the palate, is very wide, yet the child nurses the bottle very well by means of a large rubber nipple. Six weeks after the first operation Dr. Gay performed a second in precisely the same manner. The lip was freely dissected from the bone. A narrow strip was then cut from above downwards, on each side of the fissure, and left attached below. The whole incision was closed with interrupted silk sutures and adhesive plaster. Part of the sutures were removed in twenty-four hours, and the remainder in forty-eight hours. Three days after the operation the union was perfect.

Geo. W. Gay, M. D.

LETTER FROM KNOXVILLE, TENNESSEE.

[from an occasional correspondent.]

Messrs. Editors. — On examining any good map of North America, we will see a long, uninterrupted, elevated belt of territory traversing the States of Pennsylvania, Maryland, and Virginia. Before reaching the thirty-eighth degree of latitude this range of mountains divides; one limb, directed in a more westerly course, is the Cumberland range, and the other a continuation of the main chain. The space between these limbs which lies in the State of Tennessee is known as East Tennessee. The region may be compared to a trough of the sea between two high waves. This section is traversed by lesser elevations or ridges, which run parallel with the high mountains on either side, and may be denominated corrugations. Upon a bird's-eye view one would conceive that this space had been compressed by the higher mountains on the sides, and the surface left with a series of hills and valleys from east to west, or rather southeast and northwest. In this division of the State there are about thirty counties, with a total area of over nine thousand square miles. Knoxville is very near the centre of the valley. The higher portions of the city are nearly one thousand feet above the level of the sea. The mean annual temperature here is about 57°. One degree of variation obtains to every hundred feet over or under one thousand feet. The summer mean at Knoxville is a fraction less than 74°. The winter average is not far from 40°. It is seldom that the mercury sinks below zero. Twenty degrees above is considered cold, and when ten is reached, winter is upon us.

The Holston River, which rises in Virginia, and the French Broad, having its source in North Carolina, unite five miles above Knoxville, and form the Tennessee. Till within five years the Holston retained its name for thirty or forty miles lower down. These streams, with their tributaries, render the country well watered, and along their sides are found alluvial bottoms of greater or less width. Above these bottoms the soil is clayey, with an admixture of rock or small stone. Gravel is seldom found, as will be inferred from the geological formation of the country.

The first settlements were made in 1760, by people from Virginia and the Carolinas, with a sprinkling from Pennsylvania.

These pioneers were hardy and industrious people, and transmitted their good qualities to posterity. They established academies and colleges at once, and made education a prominent measure in the various communities. Some of the earliest physicians were persons of liberal education and high standing in their profession. Two or three received their education in Europe, and all were graduates of a medical college. In subsequent years, bringing us up to 1820 and later, many young men were unable to travel over the wide expanse of country to reach a medical school, and consequently commenced practice with only the advantages of a home education. There are very many at this day practicing medicine who never saw a medical college. Since the close of the late war, great numbers of young men have gone to the Atlantic cities to pursue medical studies, or have patronized the schools of Nashville and Louisville.

The Medical Society of East Tennessee was organized nearly thirty years ago, and, with only an interruption from 1860 to 1870, has been signally flourishing. It is expected that a hospital will be organized soon, as a building has been purchased with ample ground and other conveniences requisite. Such an institution is much needed here, as the fortunes of war and the results of poverty and vice have left great numbers of needy people, who are dependent upon private charity and the aid afforded by benevolent associations temporarily organized.

East Tennessee has always been considered healthy, and, from its mild climate, its altitude, and the broken mountainous surface, we could not expect to find it otherwise. Except upon the widest river bottoms, malarial disease is never encountered. During the damp and chilly months of winter and spring, we find acute pulmonary complaints and rheumatism very prevalent. Typhoid fevers occur very rarely. Every year we see more or less cases which may be classed as typhus mitior. Diseases peculiar to children are of a mild type seldom proving fatal. Scarlet fever has appeared in Knoxville, since the war closed, but once, and then it was very benign. Cholera infantum seldom assumes a severe form. Asiatic cholera visited Knoxville in 1849, 1854, 1866, and 1873. During its last visitation less than forty deaths occurred, and by adopting sanitary measures promptly, the disease was very effectually stamped out. The negroes constitute quite a proportion of our population, and an account of the diseases to which they are liable will afford a theme for some future communication.

Knoxville, Tenn., *January* 4, 1875.

WEEKLY BULLETIN OF PREVALENT DISEASES.

The following is a bulletin of the diseases prevalent in Massachusetts during the week ending January 16, 1875, compiled under the authority of the State Board of Health from the returns of physicians representing all sections of the State:—

In Berkshire: pneumonia, rheumatism, bronchitis, and typhoid fever. Diphtheria and croup are less prevalent.

In the Connecticut Valley: bronchitis, influenza, rheumatism, diphtheria,

pneumonia, whooping-cough, and croup. Scarlatina is less prevalent. One physician in Springfield reports meningitis.

In the Midland section: mild bronchitis, severe pneumonia, influenza, rheumatism, whooping-cough, scarlatina, and diphtheria. Erysipelas is reported as "epidemic" in the northern part of Worcester County.

In Middlesex and Essex counties: influenza, bronchitis, scarlatina, rheumatism, pneumonia, and whooping-cough. Measles and diphtheria are subsiding.

In the Metropolitan section (Boston and its suburbs): bronchitis, pneumonia (not fatal), rheumatism (subacute), measles, scarlatina, influenza, and whooping-cough. Diphtheria and tonsillitis appear to be subsiding together.

In the Southeastern counties: mild bronchitis, influenza, pneumonia, rheumatism, whooping-cough, and croup. Scarlatina is less prevalent.

It appears that bronchitis, pneumonia, and rheumatism prevail in all parts; croup and diphtheria are most prevalent in the Connecticut Valley; scarlatina is in the Midland, Northeastern, and Metropolitan sections, its type being generally mild; whooping-cough prevails mostly in the rural sections.

Since last week there has been a decline in the following: measles, diphtheria, and tonsillitis. Bronchitis, influenza, pneumonia, rheumatism, scarlatina, and erysipelas show an increased prevalence. Croup and whooping-cough are the same as at last report. F. W. Draper, M. D., Registrar.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING JANUARY 9, 1875.

	Estimated Population.	Total Mortality for the Week.	Annual Death-rate per 1000 during Week.
New York	1,040,000	632	33
Philadelphia	775,000	292	20
Brooklyn	450,000	244	28
Boston	350,000	167	25
Providence	100,000	35	18
Worcester	50,000	23	24
Lowell	50,000	16	17
Cambridge	44,000	36	47
Fall River	34,200	24	28
Lawrence	33,000	7	11
Springfield	33,000	7	11
Lynn	28,000	16	29
Salem	26,000	6	12